

- AS contd
Sub 1
- (d) exposing to patterned radiation and developing the photoresist composition coating layer to form a photoresist relief image over the antireflective hard mask composition; ✓
- (e) etching the antireflective hard mask composition to form a relief image thereof;
- and
- (f) etching hard dielectric layer areas.
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13. (amended) The method of claim 1 wherein the antireflective hard mask layer is at least about three times less reactive than the dielectric layer to the same oxygen plasma oxygen applied to the antireflective composition and the hard mask composition under the same conditions.

18. (amended) A method for etching a dielectric layer overlying an integrated circuit or electronic packaging substrate, comprising:

- A3
- (a) providing an integrated circuit substrate having a dielectric layer thereon;
- (b) over the dielectric layer, depositing a coating layer of an organic antireflective hard mask composition that is at least three times less reactive than the dielectric layer to the same oxygen plasma oxygen applied to the antireflective composition and the hard mask composition under the same conditions;
- (c) depositing a coating layer of a photoresist composition over the antireflective hard mask composition coating layer;
- (d) exposing to patterned radiation and developing the photoresist composition coating layer to form a photoresist relief image over the antireflective hard mask composition;
- (e) etching the antireflective hard mask composition to form a relief image thereof;
- and
- (f) etching hard dielectric layer areas.

AS
cont'd

19. (amended) The method of claim 18 wherein the antireflective hard mask composition is at least about 5 times less reactive than the dielectric composition layer to the same oxygen plasma oxygen applied to the antireflective composition and the hard mask composition under the same conditions.

Please add the following new claims.

APL
Sub B2

24. A method for etching a dielectric layer overlying an integrated circuit or electronic packaging substrate, comprising:

- (a) providing an integrated circuit substrate having a dielectric layer thereon;
- (b) over the dielectric layer, depositing a coating layer of an inorganic antireflective hard mask composition, the composition comprising a resin that comprises one or more inorganic elements selected from Group IIIa, IVa, Va, VIIA, VIII, Ib, IIb, IIIb, IVb, or Vb of the Periodic Table;
- (c) depositing a coating layer of a photoresist composition over the antireflective hard mask composition coating layer;
- (d) exposing to patterned radiation and developing the photoresist composition coating layer to form a photoresist relief image over the antireflective hard mask composition;
- (e) etching the antireflective hard mask composition to form a relief image thereof;

and

- (f) etching hard dielectric layer areas.

✓

25. The method of claim 24 wherein the resin contains Si, Al or Ge atoms.

26. The method of claim 24 wherein the resin contains Si atoms.

27. The method of claim 24 wherein the photoresist composition is imaged with radiation having a wavelength of about 248 nm, and the antireflective composition resin comprises optionally substituted anthracene groups or optionally substituted naphthyl groups.

28. The method of claim 24 wherein the photoresist composition is imaged with radiation having a wavelength of about 193 nm, and the antireflective composition resin comprises optionally substituted phenyl groups.

29. The method of claim 24 wherein the antireflective composition comprises a photoacid generator compound as a separate component than the resin.

REMARKS

The specification has been amended to correct an inadvertent misspelling. Claims 2, 3, and 21-23 have been cancelled without prejudice; claims 1, 13, 18, and 19 have been amended, and claims 24-29 have been added. No new matter has been added by virtue of the amendments. For instance, support for the new claims appears e.g. on page 3 of the application. Support for the amendments of claims 13, 18 and 19 appears e.g. in the original claims of the application and page 4, lines 23-27 of the application.

As detailed at pages 2-3 of the Office Action, the specification was objected to for several reasons.

The spelling of germanium has been corrected at page 3 as suggested by the Examiner.

At page 3, lines 1-2 of the Office Action, the following is stated:

"the meaning of "...carbon groups ..." (page 5, line 26) is not clear. Apparently the term "carbon containing compounds is more appropriate.